AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1-23. (cancelled)

24. (currently amended) A method for measuring a flow in a pump system, in which a liquid flow is generated by means of a pump and the pump is actuated by an electric drive, in which the rotation speed of an alternating-current motor is controlled with a control unit, ~~characterised in that the method comprises~~ comprising:

- measuring (402) a pump power (P) in the pump system,
- measuring a rotation speed (v) of the pump,
- measuring (504) a static pressure (H_s),
- setting an estimate of a dynamic pressure (H_d) to a pre-estimated constant value,
- determining (506) an estimate of a total pressure (H) on the basis of the static pressure, a difference (Δh) of height between static pressure sensors, and the estimate of the dynamic pressure,
- determining a first estimate (410, 416) of the liquid flow on the basis of the measured pump power (P) and rotation speed variables,

- determining a second estimate (514, 516) of the liquid flow on the basis of the estimate of a total pressure (H) and rotation speed variables,

- determining a flow measurement result by a logical selection or any other predetermined function on said first estimate of the liquid flow and said second estimate of the liquid flow,

- determining (520) a new estimate of a dynamic pressure (H_d) on the basis of the flow measurement result,

- re-determining the estimate of a total pressure (H) on the basis of the static pressure, the difference (Δh) of height between the static pressure sensors, and the new estimate of the dynamic pressure,

- re-determining the second estimate of the liquid flow on the basis of the estimate of a total pressure (H) and rotation speed variables, and

- re-determining the flow measurement result by a logical selection or any other predetermined function on said first estimate of the liquid flow and said second estimate of the liquid flow.

25. (currently amended) [[A]] The method as defined in claim 24, ~~characterised in that the method comprises~~ further comprising: determining a first flow value range and a second flow value range, said first estimate of the liquid flow being

selected as the flow measurement result if said first estimate of the liquid flow is within the first flow value range (412), and said second estimate of the liquid flow being selected as the flow measurement result if said second estimate of the liquid flow is within the second flow value range (510).

26. (currently amended) [[A]] The method as defined in claim 25, ~~characterised in that~~ wherein said first flow value range and said second flow value range are selected such that, in the first flow value range an absolute value of a sensitivity of flow change versus relative power change is lower than an absolute value of a sensitivity of flow change versus relative total pressure change, and in that in the second flow value range, said absolute value of said sensitivity of flow change versus relative total pressure change is lower than said absolute value of said sensitivity of flow change versus relative power change.

27. (currently amended) [[A]] The method as defined in claim 24, ~~characterised in that~~ wherein the flow measurement result is determined on the basis of both the total pressure and the pump power, the flow measurement result being a predetermined mathematical function of said first estimate of the liquid flow and said second estimate of the liquid flow.

28. (currently amended) [[A]] The method as defined in claim 27, ~~characterised in that~~ wherein said predetermined mathematical function is a mean value.

29. (currently amended) [[A]] The method as defined in claim 24, ~~characterised in that~~ wherein the frequency of the current supplied to the alternating-current motor is measured and the rotation speed of the motor is determined on the basis of the measured supply frequency.

30. (currently amended) [[A]] The method as defined in claim 24, ~~characterised in that~~ wherein the supply current and supply voltage of the alternating-current motor is measured and the power (P) of the alternating-current motor is determined on the basis of the measured current value (I) and voltage value (U).

31. (currently amended) [[A]] The method as defined in claim 24, ~~characterised in that~~ wherein, with a view to determining the static pressure (H_s), a first static pressure value of the liquid prevailing in the pump input is measured and a second static pressure value of the liquid prevailing in the pump output is measured, and said static pressure is formed by determining the difference between the second static pressure value and the first static pressure value.

32. (currently amended) [[A]] The method as defined in claim 31, ~~characterised in that~~ wherein, with a view to determining the estimate of the total pressure (H), said estimate of the total pressure is formed by adding the estimate of the dynamic pressure to the static pressure.

33. (currently amended) [[A]] The method as defined in claim 24, ~~characterised in that~~ wherein the calculation of the flow value is performed in the control unit and that the control unit is a frequency converter.

34. (currently amended) An arrangement for measuring the flow in a pump system comprising a pump (240) for generating a liquid flow, an electric drive for actuating the pump, the electric drive comprising an alternating-current motor (230) and a control unit (220) for controlling the rotation speed of the alternating-current motor, ~~characterised in that the arrangement comprises~~ comprising:

- means (221, 223) for measuring a pump power (P) in the pump system,

- means (221, 223, 228) for measuring a rotation speed (v) of the pump,

- means (244, 245) for measuring a static pressure (H_s),

- means (221, 222, 228) for setting an estimate of a dynamic pressure (H_d) to a pre-estimated constant value,

- means (221, 222, 228) for determining an estimate of a total pressure (H) on the basis of the static pressure, a difference (Δh) of height between static pressure sensors, and the estimate of the dynamic pressure,

- means (221, 222) for determining a first estimate of the liquid flow on the basis of the measured pump power (P) and rotation speed variables,

- means (221, 222) for determining a second estimate of the liquid flow on the basis of the estimate of a total pressure (H) and rotation speed variables,

- means (221, 222) for determining a flow measurement result by a logical selection or any other predetermined function on said first estimate of the liquid flow and said second estimate of the liquid flow,

- means (221, 222) for determining a new estimate of a dynamic pressure (H_d) on the basis of the flow measurement result,

- means (221, 222) for re-determining the estimate of a total pressure (H) on the basis of the static pressure, the difference (Δh) of height between the static pressure sensors, and the new estimate of the dynamic pressure,

- means (221, 222) for re-determining the second estimate of the liquid flow on the basis of the estimate of a total pressure (H) and rotation speed variables, and

- means (221, 222) for re-determining the flow measurement result by a logical selection or any other predetermined function on said first estimate of the liquid flow and said second estimate of the liquid flow.

35. (currently amended) [[A]] The measurement arrangement as defined in claim 34, ~~characterised in that~~ wherein the arrangement comprises means (222) for storing a first flow value range and a second flow value range, means (221) for selecting said first estimate of the liquid flow as the flow measurement result if said first estimate of the liquid flow is within the first flow value range, and means (221) for selecting said second estimate of the liquid flow as the flow measurement result if said second estimate of the liquid flow is within the second flow value range.

36. (currently amended) [[A]] The measurement arrangement as defined in claim 35, ~~characterised in that~~ wherein the arrangement comprises means (221) for selecting said first flow value range and said second flow value range such that, in the first flow value range an absolute value of a sensitivity of flow change versus relative power change is lower than an

absolute value of a sensitivity of flow change versus relative total pressure change, and in that in the second flow value range, the absolute value of the sensitivity of flow change versus relative total pressure change is lower than the absolute value of the sensitivity of flow change versus relative power change.

37. (currently amended) [[A]] The measurement arrangement as defined in claim 34, ~~characterised in that~~ wherein the arrangement comprises means (221, 222) for determining the flow measurement result on the basis of both the total pressure and the pump power, the flow measurement result being a predetermined mathematical function of said first estimate of the liquid flow and said second estimate of the liquid flow.

38. (currently amended) [[A]] The measurement arrangement as defined in claim 37, ~~characterised in that~~ wherein said predetermined mathematical function is a mean value.

39. (currently amended) [[A]] The measurement arrangement as defined in claim 34, ~~characterised in that~~ wherein the control unit (220) comprises means (223, 228) for measuring the frequency of the current supplying the alternating-current motor and means (221, 222) for determining the rotation speed of the motor on the basis of the measured supply frequency.

40. (currently amended) [[A]] The measurement arrangement as defined in claim 34, ~~characterised in that~~ wherein the control unit (220) comprises means (221, 223, 228) for measuring the supply current and supply voltage of the alternating-current motor and means (221, 222) for determining the power (P) of the alternating-current motor on the basis of the measured current value (I) and voltage value (U).

41. (currently amended) [[A]] The measurement arrangement as defined in claim 34, ~~characterised in that~~ wherein the arrangement comprises a first pressure sensor (244) for measuring a first static pressure value prevailing in the pump input, a second pressure sensor (245) for measuring a second static pressure value prevailing in the pump output, and means (221, 223) determining said static pressure (H_s) to be a difference between the second static pressure value and the first static pressure value.

42. (currently amended) [[A]] The measurement arrangement as defined in claim 41, ~~characterised in that~~ wherein the arrangement comprises means (221) for forming the estimate of the total pressure (H) as a sum of the static pressure and the estimate of the dynamic pressure.

43. (currently amended) [[A]] The measurement arrangement as defined in claim 34, ~~characterised in that~~ wherein the means (221, 222, 223, 228) for calculating the flow measurement result are included in the control unit (220), the control unit being a frequency converter.

44. (currently amended) [[A]] The measurement arrangement as defined in claim 43, ~~characterised in that~~ wherein the control unit (220) comprises a processor (221) for controlling the operation of the control unit, said processor being disposed to perform calculation of the flow measurement result.

45. (currently amended) [[A]] The measurement arrangement as defined in claim 43, ~~characterised in that~~ wherein the control unit (220) comprises at least one of the following: a display (224) for displaying the flow measurement result and means for transmitting the flow measurement result to a data transmission channel.

46. (currently amended) [[A]] The measurement arrangement as defined in claim 43, ~~characterised in that~~ wherein the control unit is disposed to use the flow measurement result as a control parameter of the electric drive.